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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/138,429	08/24/1998	IMRAN HASHIM	AMAT/2406/MD	4066
32588	7590	05/10/2005	EXAMINER	
APPLIED MATERIALS, INC. 2881 SCOTT BLVD. M/S 2061 SANTA CLARA, CA 95050			MERCADO, JULIAN A	
			ART UNIT	PAPER NUMBER
			1745	
DATE MAILED: 05/10/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/138,429

Applicant(s)

HASHIM ET AL.

Examiner

Julian Mercado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 21-50, 53-56 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 21-50, 53-56 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 8, 2005 has been entered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 31 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 31 recites the limitation "the static magnetic field" in line 10. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21, 22, 24, 27-29, 32-43, 45, 46, 48-50 and 53 are rejected under 35 U.S.C.

103(a) as being unpatentable over Hsu (U.S. Pat. 5,589,039) et al. in view of Miyata

(U.S. Pat. 5,519,373).

Claims 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. in view of Miyata, and further in view of and Tepman (U.S. Pat. 5,527,438).

Claims 23, 25, 26, 30 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu and Miyata, and further in view of Boys et al. (U.S. Pat. 4,500,409).

The rejection is maintained for the reasons of record. New dependent claims 55 and 56, which recite a grounded collimator positioned between the target and the substrate support, are rejected based on Hsu et al., Miyata and Tepman '438 for the reasons already of record in that Tepman '438 teaches a grounded collimator [12]. The skilled artisan is maintained to find obvious to employ in Hsu's invention a grounded collimator, for reasons such as screening highly oblique sputtered particles and providing for a symmetrical flux of incoming target material. (see, for example, col. 2 line 29 et seq.)

Independent claims 21, 27, and 48 have been amended to recite that the magnetic field extends along the substrate surface. As applicant has noted, this feature was previously presented in unamended claim 41 and asserts that this language clearly means that the magnetic field near the support surface is substantially parallel to the support surface. Applicant submits that in Miyata the magnetic field is near the target. This argument is not persuasive. The examiner maintains that the magnetic field near the target (such as in Miyata) would result in a parallel magnetic field extending along the substrate, since the target and substrate are positioned

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in parallel. The examiner maintains that at least a portion of magnetic field lines along the target surface, since magnetic field lines are known to extend infinitely into space, would resultantly extend parallel to the substrate surface.

Claims 31, 47 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. in view of Miyata, and further in view of Tepman (U.S. Pat. 380,414, hereinafter Tepman '414).

New dependent claim 54 recites a magnetron disposed on a side of the target opposite the support surface. It appears to the examiner that applicant is claiming the magnetron [130] as shown in Figure 4 of the application. To this extent, Tepman '414 teaches a magnetron [1] behind the target [2]. (Figure 2) The skilled artisan would find obvious to employ a magnetron disposed on a side of the target opposite the support surface in Hsu et al.'s invention for reasons such as shaping the plasma and flow of ions to the target. (see Tepman '414 at col. 1 line 45-51)

In view of the new feature recited in claim 54, claim 31 (previously indicated as allowable) is rejected on similar grounds. Claims 31 and 47 similarly recite generating a target magnetic field from a magnetron positioned in back of the target with respect to the substrate. As to the collimator removing charges from target particles and reducing interference between the target magnetic field and a second magnetic field, as the sputtering apparatus rendered obvious by Hsu et al., Miyata and Tepman '414 results in the same disclosed and claimed by applicant, it would naturally flow for the collimator to function as claimed, absent of a showing by applicant that the claimed invention distinguishes over the reference. *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) and *In re Spada*, 15 USPQ 2d 1655 (Fed. Cir. 1990)

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Julian



**PATRICK JOSEPH RYAN**  
**SUPERVISORY PATENT EXAMINER**